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(71) Applicant: **NANOSOLAR, INC.** [US/US]; 2440 Embarcadero Way, Palo Alto, CA 94303 (US).

(72) Inventors: **SAGER, Brian**; 2250 Cornell Street, Palo Alto, CA 94306 (US). **ROSCHEISEN, Martin**; 611 Buena Vista Avenue West, San Francisco, CA 94117 (US). **PETRITSCH, Klaus**; 837 Shell Boulevard, Foster City, CA 94404 (US). **PICHLER, Karl**; 444 Saratoga

Avenue, # 15C, Santa Clara, CA 95050 (US). **FIDANZA, Jacqueline**; 3661A 18th Street, San Francisco, CA 94110 (US). **YU, Dong**; 35238 Erving Court, Fremont, CA 94536 (US).

(74) Agent: **ISENBERG, Joshua**; JDI Patent, 204 Castro Lane, Fremont, CA 94539 (US).

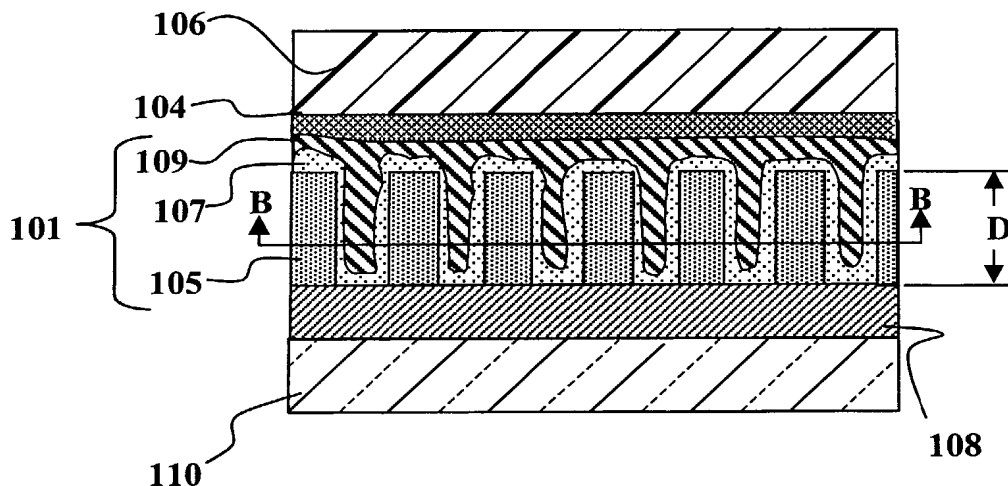
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[Continued on next page]

(54) Title: PHOTOVOLTAIC DEVICES FABRICATED BY GROWTH FROM POROUS TEMPLATE



(57) Abstract: Photovoltaic devices, such as solar cells, and methods for their manufacture are disclosed. A device may be characterized by an architecture where two more materials having different electron affinities are regularly arrayed such that their presence alternates within distances of between about 1 nm and about 100 nm. The materials are present in a matrix based on a porous template with an array of template pores. The porous template is formed by anodizing a layer of metal. A photovoltaic device may include such a porous template disposed between a base electrode and a transparent conducting electrode. A first charge-transfer material fills the template pores, A second (complementary) charge-transfer material fills additional space not occupied by the first charge-transfer material.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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# INTERNATIONAL SEARCH REPORT

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PCT/US03/19173

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01L 31/00

US CL : 257/40,465,466,464,461; 438/82,71,88,57

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 257/40,465,466,464,461; 438/82,71,88,57; 136/263,255,256

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 087 446 A2 (TOHRU) 28 March 2001, see Figures 4A,4B, and 9A; and paragraphs 0031 to 0049.see paragraph 0084, and 0041.	1-14,16-19,21-35, 37-41, 43-45, 56-59
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Y		1-19, 21-45, 56-59
X	EP 1 028 475 A1(LUPO) 16 August 2000, see Figure 1; page 2, lines 46-58; page 3, lines 49-55 and Example 1 at pages 4-5. see page 2, lines 33-40., see paragraph 0026.	1-19, 21-45, 56-59
Y	US 6,291,763 B1 (NAKAMURA ) 18 September 2001, see Figures 4A,4B, and 9A; and paragraphs 0031 to 0049. see col.4, lines 61-67; and col.28, lines 14-30.	1-19,21-45, and 56-59
X	DE 27 41 954 A1(HERTEL) 29 March 1979, see the English abstract.	1-19, 21-53 and 57-59
X	US 2002/0192441 A1(KALKAN ET AL) 19 December 2002, see claim 18.	1-19 and 21-29
Y	US 5,571,612 A (MOTOHIRO et al) 05 November 1996, see Example 3 at col. 8, see the paragraph bridging cols.8 and 9. see col.9, lines 21-24.	1-19 and 21-29

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Marian Knode

Telephone No. 571-272-1023

Jean Procter  
Paralegal Specialist

**INTERNATIONAL SEARCH REPORT**

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**Continuation of B. FIELDS SEARCHED Item 3:**

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